Extract from the RFP which became the Special Provision of the Kiewit Contract regarding soils investigations and geotechnical reports.

SP 4.19 (b)

As defined in the DB Special Provisions SP-9.6, the City has provided a Geotechnical Baseline Report (GBR) representative of the preliminary investigations and to the best of its knowledge, the information represented by the borings and tests taken by City are accurate at the location of the borings and tests. The GBR will serve as the basis of the Design-Builder's Proposal. The Design-Builder shall have responsibility to supplement the geotechnical investigations, perform analysis and interpret all the geotechnical data to finalize foundation design and prepare a Geotechnical Final Design Report (GFDR), post-Award and prior to construction commencing. Should there be any material differences between the GBR and the GFDR, the Design-Builder will so notify the City. The GFDR and associated final design plans and specifications, once agreed upon, will serve as the new basis for design and construction of the Project foundations.

Design Criteria 9.6.3

Geotechnical Investigations

Subsurface investigations shall be conducted in accordance with AASHTO LRFD Section 10.4.2 (Subsurface Exploration) and FHWA HI-97-021 (Subsurface Investigations—Geotechnical Site Characterization). Frequency of investigations shall be sufficient for the design and construction planned but not less than minimums set forth in AASHTO LRFD Table 10.4.2-1. Further to this, field investigation locations for deep foundations completed by the City shall be deemed acceptable/representative when located within 20 feet of the final foundation location as measured from the center line of the foundation(s) where end bearing is discounted. City-completed field investigation locations for end bearing deep foundations shall be within the foundation plan limits.

Geotechnical investigations completed for the Project as well as other existing geotechnical information are made available for the project geotechnical engineer's use. These completed Investigations are included in the Geotechnical Data Report.

Any additional geotechnical investigations required to complete the work in accordance with these and design specific-requirements shall be located within foundation plan limits. At bents where multiple deep foundations are used to support the pier or column, multiple geotechnical investigations sufficient shall be deemed necessary to substantiate the bases for end bearing used in the design.

Design Criteira (continued)

9.6.3.1 Field Investigations

The project geotechnical engineer shall, prior to the start of any field investigations, submit a detailed plan addressing how the planned field investigations meet the requirements of the GPR. The locations of these investigations shall be shown on a site plan not smaller than 1 inch equal to 200 feet. The plan shall clearly state the types of equipment to be used, planned completion/penetration depths, sampling types and intervals, any down hole testing planned, and completion details. In addition, the plan must address management of investigation, spoil material, maintenance of traffic requirements, environmental compliance requirement, and a time line for execution of the work, including permitting and utility clearances. Investigation methods shall conform to the recommendations of FHWA HI-97-021and these criteria.

9.6.3.2 Field and Laboratory Testing

The project geotechnical engineer shall, prior to the start of any field and laboratory testing, submit a detailed plan addressing how the planned testing meets the requirements of the GPR. Applicable testing methods and procedures shall be cited. Unless otherwise noted, all testing standards shall be in accordance with HDOT standards. In addition, the plan will clearly state the name(s) of the testing facility that will be used and any applicable certifications/accreditations.

Laboratory testing shall meet the requirements of AASHTO LRFD Section 10.4.3.

9.6.4 Geotechnical Data Reports

Geotechnical reports or memoranda as detailed below shall be submitted to RTD for review and acceptance (D-B contract) or approval (D-B-B contract). Reports to be based on FHWA ED-88-053 (Checklists and Guidelines For Review of Geotechnical Reports and Preliminary Plans and Specifications).

The project geotechnical engineer shall prepare and submit to RTD report(s) documenting the field investigations and all field and laboratory testing performed, explicitly noting the date, project limits or specific area represented, and the report's intended purpose. These investigation data, together with investigation data included in the Geotechnical Data Report, shall be the bases for the engineering analyses and geotechnical designs.

9.6.4.1 Interpretation, Analyses, and Recommendations

The Project Geotechnical Engineer shall prepare and submit to RTD a geotechnical report, which shall be based on the available subsurface information, and shall include at a minimum a discussion of the interpreted subsurface and ground water conditions, including but not limited to:

A. How RTD-provided geotechnical information is incorporated.

B. Evaluation of geotechnical conditions encountered.

C. Site subsurface characteristics, variation thereof, and rational or bases for selected engineering design properties. At a minimum, site characterization(s) shall include formation, location and thickness of soil and rock units, ground water conditions observed, including design profile and an assessment of geologic and seismic hazards.

D. Site characterizations for seismic design, including bases for seismic design parameters if different from HDOT Code, site classification (AASHTO Seismic Guide Spec Section 3.4.2.1 or Building Code Section 1613.5.2), response spectra, and site-specific properties used for sites requiring site- pecific evaluations under the governing code.

E. Definition of the extent [alignment station or area] that the characteristic site (as defined in this criteria) represents, and variations of engineering properties, if any.

F. Areas where foundation excavation will extend below first ground water, including discussions of ground water chemistry and the potential for ground water fluctuations whether seasonal or tidal, and artesian.

G. Discussion of how the engineering designs, design parameters, and analyses take construction means and methods into account.

H. Discussion of recommended resistance factors for design of structure foundations in accordance with requirements of HDOT Code and discussion of recommended factors of safety for structures or facilities where design is governed by the Building Code.